Patent claims

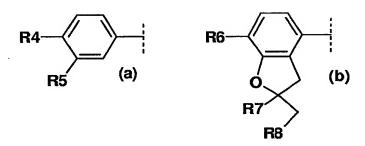
1. Compounds of formula 1

in which

R1 is 1-4C-alkyl and

R2 is 1-4C-alkyl,

R3 represents a phenyl derivative of formulae (a) or (b)



wherein

R4 is 1-4C-alkoxy or 1-4C-alkoxy which is completely or predominantly substituted by fluorine, R5 is 1-8C-alkoxy, 3-7C-cycloalkoxy, 3-7C-cycloalkylmethoxy, or 1-4C-alkoxy which is completely or predominantly substituted by fluorine,

R6 is 1-4C-alkoxy, 3-5C-cycloalkoxy, 3-5C-cycloalkylmethoxy, or 1-4C-alkoxy which is completely or predominantly substituted by fluorine,

R7 is 1-4C-alkyl and

R8 is hydrogen or 1-4C-alkyl,

or wherein

R7 and R8 together and with inclusion of the two carbon atoms, to which they are bonded, form a spiro-linked 5-, 6- or 7-membered hydrocarbon ring, optionally interrupted by an oxygen or sulphur atom,

R9 is hydroxyl, halogen, nitro, cyano, 1-4C-alkyl, trifluoromethyl, 1-4C-alkoxy, 1-4C-alkoxy which is completely or predominantly substituted by fluorine, hydroxycarbonyl, hydroxycarbonyl-1-4C-alkyl,

1-4C-alkylcarbonyl, 1-4C-alkylcarbonyl, 1-4C-alkylcarbonylamino, 1-4C-alkylcarbonyloxy, 1-4C-alkylcarbonyloxy, -C(O)R10, -S(O) $_2$ -R11, -O-(CH $_2$) $_n$ -C(O)-R12, -(CH $_2$) $_r$ -C(O)-R26 or -N(R29)R30,

R10 is -N(R13)R14,

R11 is -N(R22)R23,

R12 is -N(R24)R25,

R13 is hydrogen, 1-4C-alkyl, 3-7C-cycloalkyl or 3-7C-cycloalkylmethyl.

R14 is hydrogen, 1-4C-alkyl, 3-7C-cycloalkyl or 3-7C-cycloalkylmethyl,

or R13 and R14 together and with inclusion of the nitrogen atom to which they are bonded, form a 1-pyrrolidinyl-, 1-piperidinyl-, 1-hexahydroazepinyl-ring or a ring of formula (c),



wherein

A is O, S, SO, SO₂ or NR15,

R15 is hydrogen, 1-4C-alkyl, phenyl, pyridyl, -(CH₂)_m-R16 or -(CH₂)_p-C(O)R17,

R16 is -N(R18)R19,

R17 is -N(R20)R21,

R18 is hydrogen, 1-4C-alkyl, 3-7C-cycloalkyl or 3-7C-cycloalkylmethyl,

R19 is hydrogen, 1-4C-alkyl, 3-7C-cycloalkyl or 3-7C-cycloalkylmethyl,

or R18 and R19 together and with inclusion of the nitrogen atom to which they are bonded, form a 1-pyrrolidinyl-, 1-piperidinyl-, 1-piperazinyl, 1-(1-4C-alkyl)-piperazin-4-yl-, 1-hexahydroazepinyl-, 4-morpholinyl-, 4-thiomorpholinyl-, thiomorpholin-1-oxide-4-yl- or thiomorpholin-1,1-dioxide-4-yl-ring,

R20 is hydrogen, 1-4C-alkyl, 3-7C-cycloalkyl or 3-7C-cycloalkylmethyl,

R21 is hydrogen, 1-4C-alkyl, 3-7C-cycloalkyl or 3-7C-cycloalkylmethyl,

or R20 and R21 together and with inclusion of the nitrogen atom to which they are bonded, form a 1-pyrrolidinyl-, 1-piperidinyl-, 1-piperazinyl, 1-(1-4C-alkyl)-piperazin-4-yl-, 1-hexahydroazepinyl-, 4-morpholinyl, 4-thiomorpholinyl-, thiomorpholin-1-oxide-4-yl- or thiomorpholin-1,1-dioxide-4-yl-ring,

R22 is hydrogen, 1-4C-alkyl, 3-7C-cycloalkyl or 3-7C-cycloalkylmethyl,

R23 is hydrogen, 1-4C-alkyl, 3-7C-cycloalkyl or 3-7C-cycloalkylmethyl,

or R22 and R23 together and with inclusion of the nitrogen atom to which they are bonded, form a 1-pyrrolidinyl-, 1-piperidinyl-, 1-piperazinyl, 1-(1-4C-alkyl)-piperazin-4-yl-, 1-hexahydroazepinyl-, 4-morpholinyl, 4-thiomorpholinyl-, thiomorpholin-1-oxide-4-yl- or thiomorpholin-1,1-dioxide-4-yl-ring,

R24 is hydrogen, 1-4C-alkyl, 3-7C-cycloalkyl or 3-7C-cycloalkylmethyl,

R25 is hydrogen, 1-4C-alkyl, 3-7C-cycloalkyl or 3-7C-cycloalkylmethyl,

or R24 and R25 together and with inclusion of the nitrogen atom to which they are bonded, form a 1-pyrrolidinyl-, 1-piperidinyl-, 1-piperazinyl, 1-(1-4C-alkyl)-piperazin-4-yl-, 1-hexahydroazepinyl-, 4-morpholinyl, 4-thiomorpholinyl-, thiomorpholin-1-oxide-4-yl- or thiomorpholin-1,1-dioxide-4-yl-ring,

R26 is -N(R27)R28,

R27 is hydrogen, 1-4C-alkyl, 3-7C-cycloalkyl or 3-7C-cycloalkylmethyl,

R28 is hydrogen, 1-4C-alkyl, 3-7C-cycloalkyl or 3-7C-cycloalkylmethyl,

or R27 and R28 together and with inclusion of the nitrogen atom to which they are bonded, form a 1-pyrrolidinyl-, 1-piperidinyl-, 1-piperazinyl, 1-(1-4C-alkyl)-piperazin-4-yl-, 1-hexahydroazepinyl-, 4-morpholinyl, 4-thiomorpholinyl-, thiomorpholin-1-oxide-4-yl- or thiomorpholin-1,1-dioxide-4-yl-ring,

R29 is hydrogen, 1-4C-alkyl, 3-7C-cycloalkyl or 3-7C-cycloalkylmethyl,

R30 is hydrogen, 1-4C-alkyl, 3-7C-cycloalkyl or 3-7C-cycloalkylmethyl,

or R29 and R30 together and with inclusion of the nitrogen atom to which they are bonded, form a 1-pyrrolidinyl-, 1-piperidinyl-, 1-piperazinyl, 1-(1-4C-alkyl)-piperazin-4-yl-, 1-hexahydroazepinyl-, 4-morpholinyl, 4-thiomorpholinyl-, thiomorpholin-1-oxide-4-yl- or thiomorpholin-1,1-dioxide-4-yl-ring,

n is an integer from 1 to 2,

m is an integer from 2 to 4,

p is an integer from 1 to 4,

r is an integer from 1 to 4,

and the salts of these compounds.

2. Compounds of formula 1 according to claim 1, in which

R1 is 1-4C-alkyl,

R2 is 1-4C-alkyl,

R3 represents a phenyl derivative of formulae (a) or (b)

wherein

R4 is 1-2C-alkoxy or 1-2C-alkoxy which is completely or predominantly substituted by fluorine, R5 is 1-2C-alkoxy or 1-2C-alkoxy which is completely or predominantly substituted by fluorine, R6 is 1-2C-alkoxy or 1-2C-alkoxy which is completely or predominantly substituted by fluorine, R7 is methyl and R8 is hydrogen.

or wherein

R7 and R8 together and with inclusion of the two carbon atoms, to which they are bonded, form a spiro-linked cyclopentane, cyclohexane, tetrahydrofuran or tetrahydropyran ring,

R9 is hydroxyl, halogen, hydroxycarbonyl, hydroxycarbonyl-1-4C-alkyl, benzyloxy, -C(O)R10, -S(O)₂-R11, -O-(CH₂)ո-C(O)-R12, -(CH₂)-C(O)-R26 or -N(R29)R30,

R10 is -N(R13)R14,

R11 is -N(R22)R23,

R12 is -N(R24)R25,

R13 is hydrogen or 1-4C-alkyl,

R14 is hydrogen or 1-4C-alkyl,

or R13 and R14 together and with inclusion of the nitrogen atom to which they are bonded, form a 1-pyrrolidinyl-, 1-piperidinyl-, 1-hexahydroazepinyl-ring or a ring of formula (c),



wherein

A is O, S, SO, SO₂ or NR15,

R15 is hydrogen, 1-4C-alkyl, phenyl, pyridyl, -(CH₂)_m-R16 or -(CH₂)_p-C(O)R17,

R16 is -N(R18)R19,

R17 is -N(R20)R21,

R18 is hydrogen or 1-4C-alkyl,

R19 is hydrogen or 1-4C-alkyl,

or R18 and R19 together and with inclusion of the nitrogen atom to which they are bonded, form a 1-pyrrolidinyl-, 1-piperidinyl-, 1-piperazinyl, 1-(1-4C-alkyl)-piperazin-4-yl-, 1-hexahydroazepinyl-, 4-morpholinyl-, 4-thiomorpholinyl-, thiomorpholin-1-oxide-4-yl- or thiomorpholin-1,1-dioxide-4-yl-ring,

R20 is hydrogen or 1-4C-alkyl,

R21 is hydrogen or 1-4C-alkyl,

or R20 and R21 together and with inclusion of the nitrogen atom to which they are bonded, form a 1-pyrrolidinyl-, 1-piperidinyl-, 1-piperazinyl, 1-(1-4C-alkyl)-piperazin-4-yl-, 1-hexahydroazepinyl-, 4-morpholinyl, 4-thiomorpholinyl-, thiomorpholin-1-oxide-4-yl- or thiomorpholin-1,1-dioxide-4-yl-ring,

R22 is hydrogen or 1-4C-alkyl,

R23 is hydrogen or 1-4C-alkyl.

or R22 and R23 together and with inclusion of the nitrogen atom to which they are bonded, form a 1-pyrrolidinyl-, 1-piperidinyl-, 1-piperazinyl, 1-(1-4C-alkyl)-piperazin-4-yl-, 1-hexahydroazepinyl-, 4-morpholinyl, 4-thiomorpholinyl-, thiomorpholin-1-oxide-4-yl- or thiomorpholin-1,1-dioxide-4-yl-ring,

R24 is hydrogen or 1-4C-alkyl,

R25 is hydrogen or 1-4C-alkyl,

or R24 and R25 together and with inclusion of the nitrogen atom to which they are bonded, form a 1-pyrrolidinyl-, 1-piperidinyl-, 1-piperazinyl, 1-(1-4C-alkyl)-piperazin-4-yl-, 1-hexahydroazepinyl-, 4-morpholinyl, 4-thiomorpholinyl-, thiomorpholin-1-oxide-4-yl- or thiomorpholin-1,1-dioxide-4-yl-ring,

R26 is -N(R27)R28,

R27 is hydrogen or 1-4C-alkyl,

R28 is hydrogen or 1-4C-alkyl,

or R27 and R28 together and with inclusion of the nitrogen atom to which they are bonded, form a 1-pyrrolidinyl-, 1-piperidinyl-, 1-piperazinyl, 1-(1-4C-alkyl)-piperazin-4-yl-, 1-hexahydroazepinyl-, 4-morpholinyl, 4-thiomorpholinyl-, thiomorpholin-1-oxide-4-yl- or thiomorpholin-1,1-dioxide-4-yl-ring,

R29 is hydrogen or 1-4C-alkyl,

R30 is hydrogen or 1-4C-alkyl,

or R29 and R30 together and with inclusion of the nitrogen atom to which they are bonded, form a 1-pyrrolidinyl-, 1-piperidinyl-, 1-piperazinyl, 1-(1-4C-alkyl)-piperazin-4-yl-, 1-hexahydroazepinyl-, 4-morpholinyl, 4-thiomorpholinyl-, thiomorpholin-1-oxide-4-yl- or thiomorpholin-1,1-dioxide-4-yl-ring,

n is an integer from 1 to 2,

m is an integer from 2 to 4,

p is an integer from 1 to 4,

r is an integer from 1 to 4,

and the salts of these compounds.

3. Compounds of formula 1 according to claim 1, in which

R1 is methyl or ethyl,

R2 is methyl or ethyl,

R3 represents a phenyl derivative of formulae (a) or (b)

wherein

R4 is methoxy, ethoxy or difluoromethoxy,

R5 is methoxy, ethoxy or difluoromethoxy,

R6 is methoxy, ethoxy or difluoromethoxy,

R7 is methyl and

R8 is hydrogen,

or wherein

R7 and R8 together and with inclusion of the two carbon atoms, to which they are bonded, form a spiro-linked cyclopentane, cyclohexane, tetrahydrofuran or tetrahydropyran ring,

R9 is hydroxyl, halogen, hydroxycarbonyl, hydroxycarbonylmethyl or benzyloxy, and the salts of these compounds.

4. Compounds of formula 1 according to claim 1, in which

R1 is methyl or ethyl,

R2 is methyl or ethyl,

R3 represents a phenyl derivative of formulae (a) or (b)

wherein

R4 is methoxy, ethoxy or difluoromethoxy,

R5 is methoxy, ethoxy or difluoromethoxy,

R6 is methoxy, ethoxy or difluoromethoxy,

R7 is methyl and

R8 is hydrogen,

or wherein

R7 and R8 together and with inclusion of the two carbon atoms, to which they are bonded, form a spiro-linked cyclopentane, cyclohexane, tetrahydrofuran or tetrahydropyran ring,

R9 is -C(O)R10,

R10 is -N(R13)R14,

R13 is hydrogen or 1-4C-alkyl,

R14 is hydrogen or 1-4C-alkyl,

or R13 and R14 together and with inclusion of the nitrogen atom to which they are bonded, form a 1-pyrrolidinyl-, a 1-piperidinyl-ring or a ring of formula (c),

wherein

A is O, S, SO₂ or NR15,

R15 is 1-4C-alkyl, phenyl, pyridyl, $-(CH_2)_m$ -R16 or $-(CH_2)_p$ -C(O)R17,

R16 is -N(R18)R19,

R17 is -N(R20)R21,

R18 is hydrogen or 1-4C-alkyl,

R19 is hydrogen or 1-4C-alkyl,

or R18 and R19 together and with inclusion of the nitrogen atom to which they are bonded, form a 1-pyrrolidinyl-, 1-piperidinyl-, 1-methyl-piperazin-4-yl- or a 4-morpholinyl-ring,

R20 is hydrogen or 1-4C-alkyl,

R21 is hydrogen or 1-4C-alkyl,

or R20 and R21 together and with inclusion of the nitrogen atom to which they are bonded, form a 1-pyrrolidinyl-, 1-piperidinyl-, 1-methyl-piperazin-4-yl- or a 4-morpholinyl-ring,

m is 2,

p is 1,

and the salts of these compounds.

5. Compounds of formula 1 according to claim 1, in which

R1 is methyl or ethyl,

R2 is methyl or ethyl,

R3 represents a phenyl derivative of formulae (a) or (b)

wherein

R4 is methoxy, ethoxy or difluoromethoxy,

R5 is methoxy, ethoxy or difluoromethoxy,

R6 is methoxy, ethoxy or difluoromethoxy,

R7 is methyl and

R8 is hydrogen,

or wherein

R7 and R8 together and with inclusion of the two carbon atoms, to which they are bonded, form a spiro-linked cyclopentane, cyclohexane, tetrahydrofuran or tetrahydropyran ring,

R9 is -S(O)₂-R11,

R11 is -N(R22)R23,

R22 is hydrogen or 1-4C-alkyl,

R23 is hydrogen or 1-4C-alkyl,

or R22 and R23 together and with inclusion of the nitrogen atom to which they are bonded, form a 1-pyrrolidinyl-, 1-piperidinyl-, 1-methyl-piperazin-4-yl- or a 4-morpholinyl-ring, and the salts of these compounds.

6. Compounds of formula 1 according to claim 1, in which

R1 is methyl or ethyl,

R2 is methyl or ethyl,

R3 represents a phenyl derivative of formulae (a) or (b)

wherein

R4 is methoxy, ethoxy or difluoromethoxy,

R5 is methoxy, ethoxy or difluoromethoxy,

R6 is methoxy, ethoxy or difluoromethoxy,

R7 is methyl and

R8 is hydrogen,

or wherein

R7 and R8 together and with inclusion of the two carbon atoms, to which they are bonded, form a spiro-linked cyclopentane, cyclohexane, tetrahydrofuran or tetrahydropyran ring,

R9 is $-O-(CH_2)_n-C(O)-R12$,

R12 is -N(R24)R25,

R24 is hydrogen or 1-4C-alkyl,

R25 is hydrogen or 1-4C-alkyl,

or R24 and R25 together and with inclusion of the nitrogen atom to which they are bonded, form a 1-pyrrolidinyl-, 1-piperidinyl-, 1-methyl-piperazin-4-yl- or a 4-morpholinyl-ring,

n is 1,

and the salts of these compounds.

7. Compounds of formula 1 according to claim 1, in which

R1 is methyl or ethyl,

R2 is methyl or ethyl,

R3 represents a phenyl derivative of formulae (a) or (b)

wherein

R4 is methoxy, ethoxy or difluoromethoxy,

R5 is methoxy, ethoxy or difluoromethoxy,

R6 is methoxy, ethoxy or difluoromethoxy,

R7 is methyl and

R8 is hydrogen,

or wherein

R7 and R8 together and with inclusion of the two carbon atoms, to which they are bonded, form a spiro-linked cyclopentane, cyclohexane, tetrahydrofuran or tetrahydropyran ring,

R9 is $-(CH_2)_r-C(O)-R26$,

R26 is -N(R27)R28,

R27 is hydrogen or 1-4C-alkyl,

R28 is hydrogen or 1-4C-alkyl,

or R27 and R28 together and with inclusion of the nitrogen atom to which they are bonded, form a 1-pyrrolidinyl-, 1-piperidinyl-, 1-methyl-piperazin-4-yl- or a 4-morpholinyl-ring,

r is 1,

and the salts of these compounds.

8. Compounds of formula 1 according to claim 1, in which

R1 is methyl or ethyl,

R2 is methyl or ethyl,

R3 represents a phenyl derivative of formulae (a) or (b)

wherein

R4 is methoxy, ethoxy or difluoromethoxy,

R5 is methoxy, ethoxy or difluoromethoxy,

R6 is methoxy, ethoxy or difluoromethoxy,

R7 is methyl and

R8 is hydrogen,

or wherein

R7 and R8 together and with inclusion of the two carbon atoms, to which they are bonded, form a spiro-linked cyclopentane, cyclohexane, tetrahydrofuran or tetrahydropyran ring,

R9 is -N(R29)R30,

R29 and R30 together and with inclusion of the nitrogen atom to which they are bonded, form a

1-pyrrolidinyl-, 1-piperidinyl-, 1-methyl-piperazin-4-yl- or a 4-morpholinyl-ring, and the salts of these compounds.

9. Compounds of formula 1 according to claim 1, in which

R1 is 1-4C-alkyl and

R2 is 1-4C-alkyl,

R3 represents a phenyl derivative of formulae (a) or (b)

wherein

R4 is 1-4C-alkoxy or 1-4C-alkoxy which is completely or predominantly substituted by fluorine,

R5 is 1-8C-alkoxy, 3-7C-cycloalkoxy, 3-7C-cycloalkylmethoxy, or 1-4C-alkoxy which is completely or predominantly substituted by fluorine,

R6 is 1-4C-alkoxy, 3-5C-cycloalkoxy, 3-5C-cycloalkylmethoxy, or 1-4C-alkoxy which is completely or predominantly substituted by fluorine,

R7 is 1-4C-alkyl and

R8 is hydrogen or 1-4C-alkyl,

or wherein

R7 and R8 together and with inclusion of the two carbon atoms, to which they are bonded, form a spiro-linked 5-, 6- or 7-membered hydrocarbon ring, optionally interrupted by an oxygen or sulphur atom,

is hydroxyl, halogen, nitro, cyano, hydroxycarbonyl, 1-4C-alkyl, trifluoromethyl, 1-4C-alkoxy, 1-4C-alkoxy which is completely or predominantly substituted by fluorine, amino, mono- or di-1-4C-alkyl-amino, 1-4C-alkylcarbonylamino, 1-4C-alkylcarbonyloxy, benzyloxy, -C(O)R10, -S(O)₂-R11 or -O-(CH₂)_n-C(O)-R12,

R10 is 1-4C-alkyl, 1-4C-alkoxy or -N(R13)R14,

R11 is 1-4C-alkyl or -N(R22)R23,

R12 is -N(R24)R25,

R13 is hydrogen, 1-4C-alkyl, 3-7C-cycloalkyl or 3-7C-cycloalkylmethyl,

R14 is hydrogen, 1-4C-alkyl, 3-7C-cycloalkyl or 3-7C-cycloalkylmethyl,

or R13 and R14 together and with inclusion of the nitrogen atom to which they are bonded, form a 1-pyrrolidinyl-, 1-piperidinyl-, 1-hexahydroazepinyl-ring or a ring of formula (c),



wherein

A is O, S, SO, SO₂ or NR15,

R15 is hydrogen, 1-4C-alkyl, phenyl, pyridyl, -(CH₂)_m-R16 or -(CH₂)_p-C(O)R17,

R16 is -N(R18)R19,

R17 is -N(R20)R21,

R18 is hydrogen, 1-4C-alkyl, 3-7C-cycloalkyl or 3-7C-cycloalkylmethyl,

R19 is hydrogen, 1-4C-alkyl, 3-7C-cycloalkyl or 3-7C-cycloalkylmethyl.

or R18 and R19 together and with inclusion of the nitrogen atom to which they are bonded, form a 1-pyrrolidinyl-, 1-piperidinyl-, 1-piperazinyl, 1-(1-4C-alkyl)-piperazin-4-yl-, 1-hexahydroazepinyl-, 4-morpholinyl-, 4-thiomorpholinyl-, thiomorpholin-1-oxide-4-yl- or thiomorpholin-1,1-dioxide-4-yl-ring,

R20 is hydrogen, 1-4C-alkyl, 3-7C-cycloalkyl or 3-7C-cycloalkylmethyl,

R21 is hydrogen, 1-4C-alkyl, 3-7C-cycloalkyl or 3-7C-cycloalkylmethyl,

or R20 and R21 together and with inclusion of the nitrogen atom to which they are bonded, form a 1-pyrrolidinyl-, 1-piperidinyl-, 1-piperazinyl, 1-(1-4C-alkyl)-piperazin-4-yl-, 1-hexahydroazepinyl-, 4-morpholinyl, 4-thiomorpholinyl-, thiomorpholin-1-oxide-4-yl- or thiomorpholin-1,1-dioxide-4-yl-ring,

R22 is hydrogen, 1-4C-alkyl, 3-7C-cycloalkyl or 3-7C-cycloalkylmethyl,

R23 is hydrogen, 1-4C-alkyl, 3-7C-cycloalkyl or 3-7C-cycloalkylmethyl,

or R22 and R23 together and with inclusion of the nitrogen atom to which they are bonded, form a 1-pyrrolidinyl-, 1-piperidinyl-, 1-piperazinyl, 1-(1-4C-alkyl)-piperazin-4-yl-, 1-hexahydroazepinyl-, 4-morpholinyl, 4-thiomorpholinyl-, thiomorpholin-1-oxide-4-yl- or thiomorpholin-1,1-dioxide-4-yl-ring,

R24 is hydrogen, 1-4C-alkyl, 3-7C-cycloalkyl or 3-7C-cycloalkylmethyl.

R25 is hydrogen, 1-4C-alkyl, 3-7C-cycloalkyl or 3-7C-cycloalkylmethyl,

or R24 and R25 together and with inclusion of the nitrogen atom to which they are bonded, form a

1-pyrrolidinyl-, 1-piperidinyl-, 1-piperazinyl, 1-(1-4C-alkyl)-piperazin-4-yl-, 1-hexahydroazepinyl-, 4-morpholinyl, 4-thiomorpholinyl-, thiomorpholin-1-oxide-4-yl- or thiomorpholin-1,1-dioxide-4-yl-ring,

- n is an integer from 1 to 2,
- m is an integer from 2 to 4,
- p is an integer from 1 to 4,

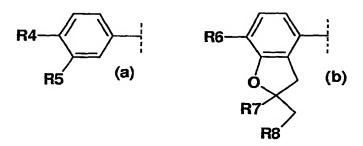
and the salts of these compounds.

10. Compounds of formula 1 according to claim 1, in which

R1 is 1-4C-alkyl,

R2 is 1-4C-alkyl,

R3 represents a phenyl derivative of formulae (a) or (b)



wherein

R4 is 1-2C-alkoxy or 1-2C-alkoxy which is completely or predominantly substituted by fluorine,

R5 is 1-4C-alkoxy,

R6 is 1-2C-alkoxy or 1-2C-alkoxy which is completely or predominantly substituted by fluorine,

R7 is methyl and

R8 is hydrogen,

or wherein

R7 and R8 together and with inclusion of the two carbon atoms, to which they are bonded, form a spiro-linked cyclopentane, cyclohexane, tetrahydrofurane or tetrahydropyran ring,

R9 is hydroxyl, hydroxycarbonyl, benzyloxy, -C(O)R10 or -O-(CH₂)_n-C(O)-R12,

R10 is -N(R13)R14,

R12 is -N(R24)R25,

R13 is hydrogen or 1-4C-alkyl,

R14 is hydrogen or 1-4C-alkyl,

or R13 and R14 together and with inclusion of the nitrogen atom to which they are bonded, form a 1-pyrrolidinyl-, 1-piperidinyl-, 1-hexahydroazepinyl-ring or a ring of formula (c),

wherein

A is O, S, SO, SO₂ or NR15,

R15 is hydrogen, 1-4C-alkyl, phenyl, pyridyl, -(CH₂)_m-R16 or -(CH₂)_p-C(O)R17,

R16 is -N(R18)R19,

R17 is -N(R20)R21,

R18 is hydrogen or 1-4C-alkyl.

R19 is hydrogen or 1-4C-alkyl,

or R18 and R19 together and with inclusion of the nitrogen atom to which they are bonded, form a 1-pyrrolidinyl-, 1-piperidinyl-, 1-piperazinyl, 1-(1-4C-alkyl)-piperazin-4-yl-, 1-hexahydroazepinyl-, 4-morpholinyl-, 4-thiomorpholinyl-, thiomorpholin-1-oxide-4-yl- or thiomorpholin-1,1-dioxide-4-yl-ring,

R20 is hydrogen or 1-4C-alkyl,

R21 is hydrogen or 1-4C-alkyl,

or R20 and R21 together and with inclusion of the nitrogen atom to which they are bonded, form a 1-pyrrolidinyl-, 1-piperidinyl-, 1-piperazinyl, 1-(1-4C-alkyl)-piperazin-4-yl-, 1-hexahydroazepinyl-, 4-morpholinyl, 4-thiomorpholinyl-, thiomorpholin-1-oxide-4-yl- or thiomorpholin-1,1-dioxide-4-yl-ring,

R24 is hydrogen or 1-4C-alkyl,

R25 is hydrogen or 1-4C-alkyl.

or R24 and R25 together and with inclusion of the nitrogen atom to which they are bonded, form a 1-pyrrolidinyl-, 1-piperidinyl-, 1-piperazinyl, 1-(1-4C-alkyl)-piperazin-4-yl-, 1-hexahydroazepinyl-, 4-morpholinyl, 4-thiomorpholinyl-, thiomorpholin-1-oxide-4-yl- or thiomorpholin-1,1-dioxide-4-yl-ring,

n is an integer from 1 to 2.

m is an integer from 2 to 4,

p is an integer from 1 to 4,

and the salts of these compounds.

11. Compounds of formula 1 according to claim 1, in which

R1 is methyl,

R2 is methyl,

R3 represents a phenyl derivative of formula (a)

wherein

R4 is methoxy or ethoxy,

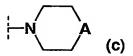
R5 is methoxy or ethoxy,

R9 is hydroxyl, hydroxycarbonyl, benzyloxy, -C(O)R10 or -O-(CH₂)_n-C(O)-R12,

R10 is -N(R13)R14,

R12 is -N(R24)R25,

R13 and R14 together and with inclusion of the nitrogen atom to which they are bonded, form a ring of formula (c),



wherein

A is O or NR15,

R15 is pyrid-4-yl, -(CH₂)_m-R16 or -(CH₂)_p-C(O)R17,

R16 is 4-morpholinyl,

R17 is 1-pyrrolidinyl,

R24 is hydrogen,

R25 is hydrogen,

or R24 and R25 together and with inclusion of the nitrogen atom to which they are bonded, form a 1-methyl-piperazin-4-yl- or 4-morpholinyl-ring,

n is 1,

m is 2,

p is 1.

and the salts of these compounds.

- 12. Compounds according to claim 1 for use in the treatment of diseases.
- 13. Pharmaceutical compositions containing one or more compounds according to claim 1 together with the usual pharmaceutical auxiliaries and/or carrier materials.
- 14. Use of compounds according to claim 1 for the preparation of pharmaceutical compositions for the treatment of airway disorders.
- 15. A method for treating an illness treatable by the administration of a PDE4 inhibitor in a patient comprising administering to said patient in need thereof a therapeutically effective amount of a compound as claimed in claim 1.

16. A method for treating airway disorders in a patient comprising administering to said patient a therapeutically effective amount of a compound as claimed in claim 1.